

**REMARKS**

The Office Action mailed April 16, 2004, has been carefully considered. In response thereto, the present application has been amended in a manner that is believed to place it into consideration for allowance. Accordingly, reconsideration and withdrawal of the outstanding Office Action and issuance of a Notice of Allowance are respectfully solicited.

The Applicant respectfully submits that the present Amendment overcomes the objection to the disclosure and to claim 7 and the rejection of claim 11 under 35 U.S.C. § 112, first paragraph, and that the Submission of Formal Drawings filed concurrently herewith overcomes the objection to the drawings.

Claims 1-4, 7-9, 12, 16, 17 and 19 are rejected under 35 U.S.C. §102(b) as being clearly anticipated by U.S. Patent 5,084,894 to *Yamamoto*. Claims 10 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,084,894 to *Yamamoto*. Claims 13-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,084,894 to *Yamamoto* in view of U.S. Patent 6,611,007 to *Thompson et al.* Claims 5, 6, and 20-23 are rejected under 35 U.S.C. §103(b) as being unpatentable over U.S. Patent 6,005,708 to *Leclerc et al.* in view of U.S. Patent 5,084,894 to *Yamamoto*. For the reasons set forth below, the Applicant respectfully submits that the present Amendment overcomes all grounds of rejection under 35 U.S.C. §§ 102 and 103.

In applying *Yamamoto* to the present claims, it is implicitly acknowledged in the Office Action that the modification of the bandgap properties by rapid thermal annealing for controlled diffusion of defects is not taught or suggested by *Yamamoto*. Otherwise, it would not have been necessary to cite *Thompson et al* against claims 13-15. Therefore, the independent claims have been amended to include rapid thermal annealing for controlled diffusion of defects. Conforming amendments have been made to the dependent claims. The

Applicant respectfully submits that the Amendment thus overcomes all grounds of rejection except the rejection over *Yamamoto* in view of *Thompson et al.*

Regarding the combination of the *Yamamoto* and *Thompson et al* references, the Office Action asserts that it would have been obvious to combine those two references because "both *Yamamoto* and *Thompson et al* relate to the same type of bandgap-modifying semiconductor quantum well structures...." The Applicant respectfully disagrees with the contention in the Office Action that the references relate to the same type of bandgap-modifying semiconductor quantum well structures. *Yamamoto* selects materials for the active layers in accordance with their desired properties. There is no post-growth bandgap modification, unless the application of the electric field is considered. Thus, *Yamamoto* does not relate to the same type of bandgap-modifying structure as *Thompson et al.* Therefore, the Applicant respectfully submits that the rationale set forth in the Office Action for combining the two references is unfounded, so that it would not have been obvious to combine the two references to achieve the present claimed invention.

Since *Leclerc et al* does not overcome above-noted deficiencies of *Yamamoto* and *Thompson et al*, the Applicant respectfully submits that no combination of the applied references would have rendered obvious the present claimed invention.

As all grounds of objection and rejection have been addressed and overcome, the Applicant respectfully submits that the application as amended is in condition for allowance. Notice of such allowance is earnestly solicited.

In case any issues remain that can be overcome through a telephone interview, the Examiner is invited to telephone the undersigned at the telephone number set forth below.

Please charge any shortage or credit any overpayment of fees to BLANK ROME LLP, Deposit Account No. 23-2185 (115354-00104). In the event that a petition for an

extension of time is required to be submitted herewith and in the event that a separate petition does not accompany this Response or is insufficient to render this Response timely, the Applicant hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized above.

Respectfully submitted,

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